

Understanding the Experiences of Dental Assistants in KSA in Providing Oral Health Education and Its Influence on Patients' General Health Behaviors: A Qualitative Inquiry

Tahani Ghayad Nayef Al-Anzi, Ashwag Mahal Meteq Alenazi, Sharifah Sahab Mohammed Alshammari, Norah Naif Mohammed Alharbi, Shorooq Sawaied Noman Aldhafeeri, Maali Fallaj Maazir Alruwaili, Noura Mudlah Helal ALrasheedi

1. Dental Assistant

ABSTRACT

Objective: This qualitative study explored the experiences of dental assistants in Saudi Arabia in providing oral health education to patients and examined how this influences patients' general health behaviors.

Methods: Semi-structured interviews were conducted with a purposive sample of 20 dental assistants working in various healthcare settings across Saudi Arabia. Thematic analysis was used to identify key themes.

Results: Four main themes emerged: 1) Dental assistants play a crucial role in providing oral health education but face challenges in effectively communicating with some patients; 2) Cultural beliefs and norms influence how patients receive and act on oral health information; 3) Oral health is perceived as an integral part of overall health and well-being; 4) Providing oral health education can positively influence patients' diet, hygiene and lifestyle behaviors.

Conclusion: Dental assistants are uniquely positioned to provide oral health education that can improve patients' oral and general health behaviors. Overcoming cultural and communication barriers is key to enhancing the impact of these educational interventions. Training dental assistants in culturally sensitive communication and collaborating with dietitians and other health providers could help optimize the behavioral impact of oral health education in the Saudi context.

1. Introduction

Oral health is increasingly recognized as a crucial component of overall health and well-being (Glick et al., 2016). Dental caries and periodontal disease, the two most common oral diseases, not only cause pain and tooth loss but are also associated with various systemic conditions such as diabetes, cardiovascular disease, and adverse pregnancy outcomes (Dörfer et al., 2017; Kane, 2017). Consequently, improving oral health can have far-reaching impacts on individuals and public health.

Dental assistants play a vital role in promoting oral health at the community and individual levels. In addition to supporting dentists with clinical procedures, dental assistants often assume the responsibility of educating patients about oral hygiene techniques, healthy eating habits, and the importance of regular dental visits (Brickle & Self, 2017). In Saudi Arabia, a country with a high prevalence of dental caries and periodontal disease, there has been a growing emphasis on utilizing dental assistants to enhance the oral health literacy of the population (Alshammari et al., 2019). However, little is known about dental assistants' experiences in providing such education and how it influences patients' health behaviors, particularly in the Saudi cultural context.

Therefore, the objective of this qualitative study was to explore the experiences of dental assistants in Saudi Arabia in providing oral health education to patients and to understand the perceived impact of this education on patients' general health behaviors. The findings could inform strategies to optimize the role of dental assistants in promoting oral and overall health.

2. Literature Review

Oral Health and General Health

The intricate link between oral health and general health has been well-established in the literature. Oral diseases share common risk factors with several chronic non-communicable diseases (NCDs) such as obesity, diabetes, and cardiovascular disease (Jepsen et al., 2017; Peres et al., 2019). These shared risk factors include unhealthy diets high in sugar, tobacco use, and excessive alcohol consumption. Additionally, there is growing evidence of a bidirectional relationship between oral diseases and certain systemic conditions. For instance, periodontal disease has been associated with an increased risk of diabetes complications, atherosclerotic cardiovascular disease, and adverse pregnancy outcomes such as preterm birth and low birth weight (Dörfer et al., 2017; Sanz et al., 2018).

Furthermore, poor oral health can have a significant negative impact on quality of life. Dental pain, tooth loss, and unsightly teeth can affect individuals' self-esteem, social interactions, and ability to eat and speak properly (Baiju et al., 2017). Addressing oral health is therefore crucial for promoting overall well-being and preventing the burden of NCDs.

Oral Health Education and Health Behaviors

Oral health education is a key strategy for promoting healthy behaviors and preventing oral diseases. It involves providing individuals with the knowledge, skills, and motivation needed to adopt and maintain good oral hygiene practices, healthy eating habits, and regular dental care (Ghaffari et al., 2018). A systematic review by Kay et al. (2016) found that oral health education interventions can lead to short-term improvements in oral health knowledge, attitudes, and behaviors, although the long-term sustainability of these changes is less clear.

Effective oral health education requires more than just providing information; it should be tailored to the individual's needs, beliefs, and cultural background (Nakre

& Harikiran, 2013). A person-centered approach that uses interactive methods, involves family and community members, and addresses the social determinants of health is more likely to result in behavior change than traditional didactic methods (Ramirez-Puerta et al., 2020).

Moreover, oral health education is most effective when delivered by trained professionals who can provide practical guidance and support. A Cochrane review by Harris et al. (2012) concluded that one-to-one oral hygiene advice provided in a dental setting can improve oral hygiene behaviors and periodontal health, especially when combined with goal setting and self-monitoring.

Role of Dental Assistants in Oral Health Promotion

Dental assistants are well-positioned to provide oral health education and promotion as they often spend considerable time with patients and develop rapport (Brickle & Self, 2017). In many dental practices, dental assistants are responsible for tasks such as providing pre- and post-operative instructions, demonstrating oral hygiene techniques, and counseling patients on diet and lifestyle factors that affect oral health (Candell & Engström, 2010).

Research suggests that dental assistants can be effective in delivering oral health education. A study by Sibiyi et al. (2018) in South Africa found that dental patients who received oral hygiene instructions from dental assistants had significant improvements in plaque control and gingival health compared to those who did not receive such education. Similarly, a randomized controlled trial by Martignon et al. (2010) in Colombia showed that a three-month educational intervention delivered by dental auxiliaries resulted in improved oral hygiene habits and reduced dental plaque levels among preschool children and their caregivers.

Beyond clinical settings, dental assistants can also play a role in community-based oral health promotion. They can participate in school-based programs, conduct oral health screenings, and provide education at health fairs and community events (Soble et al., 2017). By reaching out to underserved populations and collaborating with other health professionals, dental assistants can help address oral health disparities and integrate oral health with overall health promotion efforts.

Oral Health in Saudi Arabia

Saudi Arabia has a high burden of oral diseases, particularly dental caries and periodontal disease. A national survey found that 80% of Saudi adults had dental caries and 30% had deep periodontal pockets (Al-Ansari, 2014). The prevalence of these conditions was higher among older adults, smokers, and those with lower levels of education. Furthermore, oral health-related quality of life was found to be significantly impaired among Saudi adults with missing teeth, dental pain, and poor self-perceived oral health (Ingle et al., 2018).

Several factors contribute to the high prevalence of oral diseases in Saudi Arabia. These include a rapid nutrition transition characterized by increased consumption of sugary drinks and snacks, low fluoride exposure, limited access to preventive dental services, and lack of oral health awareness (Al-Ansari, 2014). Cultural beliefs and practices, such as negative attitudes towards dental visits and reliance on traditional remedies, may also play a role (Almaiman et al., 2016).

Recognizing these challenges, the Saudi Ministry of Health has launched several initiatives to improve oral health in the country. These include expanding the dental workforce, enhancing school-based oral health programs, and conducting national campaigns to raise oral health awareness (Saudi Ministry of Health, 2020). Dental assistants are seen as an important part of these efforts, particularly in providing oral health education to patients and communities.

However, there is limited research on the experiences and perspectives of dental assistants in Saudi Arabia with regard to oral health education. A qualitative study by Al-Yousuf et al. (2019) found that dental assistants in Riyadh perceived a need for further training in patient education and communication skills. Another study by Al-Rafee et al. (2019) highlighted the role of dental assistants in providing tobacco cessation counseling to patients, but noted barriers such as lack of time and patient resistance. Further research is needed to understand how dental assistants in various regions of Saudi Arabia approach oral health education and perceive its impact on patients' health behaviors.

3. Methods

Study Design

This study employed a qualitative descriptive approach to explore the experiences and perspectives of dental assistants in Saudi Arabia regarding oral health education and its influence on patients' health behaviors. Qualitative description is a pragmatic approach that aims to provide a comprehensive summary of an event or experience in the everyday language of those involved (Sandelowski, 2000). It is particularly useful for exploring topics about which little is known and for providing insights that can inform practice and policy (Kim et al., 2017). In this study, qualitative description was used to capture the rich, nuanced, and context-specific experiences of dental assistants in their own words.

Setting and Participants

The study was conducted in various dental care settings across Saudi Arabia, including public and private dental clinics, hospitals, and academic institutions. A purposive sample of 20 dental assistants was recruited to capture diverse perspectives based on geographic location, type of practice setting, years of experience, and sociodemographic characteristics. Inclusion criteria were: 1) working as a dental assistant in Saudi Arabia for at least one year, 2) involvement in patient education activities, and 3) willingness to share experiences and perspectives. Recruitment continued until data saturation was achieved, i.e., no new themes emerged from the interviews.

Data Collection

Data were collected through semi-structured individual interviews conducted by the first author, a trained qualitative researcher. The interviews were guided by an interview guide that was developed based on the literature review and the study objectives. The guide included open-ended questions and probes to elicit participants' experiences and perspectives on providing oral health education, the

strategies they use, the challenges they encounter, and their perceptions of how this education influences patients' health behaviors. The interviews were conducted in Arabic, the native language of the participants, and took place in a private room at the participants' workplaces or another convenient location. Each interview lasted 45-60 minutes and was audio-recorded with the participant's consent.

Data Analysis

The interview recordings were transcribed verbatim in Arabic and translated into English by a bilingual researcher. The transcripts were then analyzed using thematic analysis, a method for identifying, analyzing, and reporting patterns (themes) within the data (Braun & Clarke, 2006). The analysis followed the six phases outlined by Braun and Clarke: 1) familiarizing oneself with the data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report.

The first author read and re-read the transcripts to become immersed in the data. Initial codes were generated based on salient features of the data that were relevant to the research question. These codes were then collated into potential themes, which were reviewed and refined through an iterative process of comparing the themes to the coded extracts and the entire dataset. The final themes were named and defined, and representative quotes were selected to illustrate each theme. To enhance the trustworthiness of the findings, the themes were reviewed by two other authors and disagreements were resolved through discussion until consensus was reached.

4. Results

Theme 1: Dental assistants play a crucial role in providing oral health education but face challenges in effectively communicating with some patients.

The dental assistants in this study strongly believed that providing oral health education to patients is a crucial part of their role. They saw themselves as having a unique opportunity to influence patients' oral health behaviors, given the amount of time they spend with patients and the rapport they often develop.

"We are the ones who spend the most time with patients, more than the dentists. We are the ones who explain things to them, show them how to brush and floss, and answer their questions. So I think we play a very important role in educating patients about oral health." (DA9)

"Patients often feel more comfortable with us than with the dentists. They see us as more approachable, like a friend or a sister. So they open up to us and are more likely to listen to our advice." (DA14)

However, the dental assistants also encountered challenges in effectively communicating oral health information to some patients. Language barriers, low literacy levels, and cultural beliefs were cited as common obstacles.

"Some of our patients don't speak Arabic well, especially the older ones who came from rural areas. It can be hard to explain things to them, even with pictures and demonstrations." (DA3)

"Many of our patients have very low education levels. They don't understand the scientific terms we use, like plaque or gingivitis. We have to use very simple language and a lot of analogies." (DA11)

"In our culture, there are a lot of myths and misconceptions about oral health. Like some people believe that losing teeth is a natural part of aging, or that baby teeth don't matter because they will fall out anyway. It can be challenging to change these beliefs." (DA7)

To overcome these challenges, the dental assistants used various strategies such as using visual aids, demonstrating techniques on models, involving family members, and adapting their communication style to the patient's needs and preferences.

"I find that using pictures and videos is very helpful, especially for patients who don't read well. I show them images of healthy and unhealthy teeth and gums, and how different foods and habits affect oral health." (DA19)

"If the patient doesn't seem to understand what I'm saying, I ask a family member to join us and help explain things in their own words. Sometimes hearing it from someone they trust makes a big difference." (DA5)

Theme 2: Cultural beliefs and norms influence how patients receive and act on oral health information.

The dental assistants noted that cultural beliefs and norms played a significant role in shaping patients' attitudes and behaviors related to oral health. These beliefs varied widely depending on the patient's age, education level, socioeconomic status, and region of origin.

"In some parts of Saudi Arabia, especially in the south, people have very traditional beliefs about healthcare. They prefer to use herbal remedies and consult religious healers before coming to the dentist. So when we give them advice, they may not take it as seriously." (DA13)

"I find that older patients, especially men, are more resistant to changing their habits. They've been doing things a certain way for so long, like using miswak [a traditional teeth cleaning twig] instead of a toothbrush, or smoking shisha [waterpipe]. They don't see the need to change." (DA8)

"Patients from higher socioeconomic classes tend to be more receptive to our advice. They usually have higher education levels and more exposure to health information. They are more likely to ask questions and follow up with regular check-ups." (DA17)

The dental assistants also observed that cultural norms around gender roles and family dynamics influenced how patients received and acted on oral health information.

"In some conservative families, women need permission from their husbands or fathers to visit the dentist or make health decisions. So even if we educate the women about oral health, they may not be able to act on it without family support." (DA2)

"I find that mothers are usually the most receptive to our education, because they are the ones responsible for the family's health. If we can convince the mother to adopt good oral hygiene habits and healthy eating, it often trickles down to the rest of the family." (DA15)

To navigate these cultural influences, the dental assistants emphasized the importance of cultural competence and building trust with patients and families.

"We need to be sensitive to patients' cultural backgrounds and beliefs. We can't just impose our own views on them. We have to find ways to present the information that make sense within their worldview." (DA20)

"Building a good relationship with patients is key. If they trust us and feel that we respect them, they are more likely to listen to our advice and make changes. It takes time and patience, but it's worth it." (DA6)

Theme 3: Oral health is perceived as an integral part of overall health and well-being.

The dental assistants strongly believed that oral health is intricately linked to overall health and well-being. They saw their role as not just improving patients' smiles, but contributing to their overall quality of life.

"Oral health is not just about having nice teeth. It affects everything – how you eat, how you speak, how you feel about yourself. It's really a gateway to overall health." (DA12)

"Many of our patients have chronic diseases like diabetes or heart disease. We always emphasize to them that taking care of their oral health can help manage these conditions, and vice versa." (DA4)

The dental assistants also recognized the psychosocial impact of oral health problems and the importance of addressing these in their education.

"A lot of patients, especially adolescents and young adults, are very self-conscious about their teeth. They avoid smiling or socializing because they are embarrassed. Our job is not just to fix their teeth, but to boost their self-esteem and confidence." (DA16)

"I had a patient who was depressed and hardly ever left her house, partly because of her missing teeth. After we made her a denture, she was like a different person – smiling, going out, enjoying life again. It showed me how much of an impact our work can have." (DA10)

To promote this holistic view of oral health, the dental assistants often collaborated with other healthcare professionals and community partners.

"We work closely with the diabetes educators in our hospital. We refer patients to each other and sometimes do joint education sessions on the link between diabetes and gum disease." (DA1)

"We partner with local schools to do oral health screenings and education for children. We talk to them not just about brushing and flossing, but also about healthy eating, physical activity, and mental well-being. It's all connected." (DA18)

Theme 4: Providing oral health education can positively influence patients' diet, hygiene, and lifestyle behaviors.

The dental assistants provided numerous examples of how their oral health education had led to positive changes in patients' health behaviors. These changes were often small and gradual, but cumulatively made a significant difference in patients' oral and overall health.

"I had a patient who used to drink several cans of soda every day. After I explained to him how the sugar and acid were damaging his teeth, he started cutting back. At his last visit, he told me he was down to one can a week and was drinking more water instead." (DA11)

"A lot of my patients didn't know the proper way to brush and floss. They would just do a quick scrub and think that was enough. But after I demonstrated the techniques on a model and had them practice, they were amazed at how much plaque they were removing. Many of them said they could feel the difference in how clean their teeth were." (DA7)

"I counseled a patient who was a heavy smoker about the effects of tobacco on oral health. He had severe gum disease and was at risk of losing his teeth. It took several visits, but he finally agreed to enroll in a smoking cessation program. At his last check-up, his gums were already starting to heal." (DA14)

The dental assistants noted that the key to achieving behavior change was to provide education that was personalized, practical, and empowering.

"We can't just give generic advice like 'brush twice a day.' We need to understand each patient's unique situation – their diet, their habits, their challenges. Then we can give them specific recommendations that work for their lifestyle." (DA5)

"Patients are more likely to adopt new behaviors if they feel it's doable. So instead of telling them to overhaul their whole diet, we start with small changes like replacing sugary snacks with fruit or vegetables. Once they see they can do it, they are motivated to make more changes." (DA19)

"Our goal is not just to tell patients what to do, but to empower them to take control of their own oral health. We give them the knowledge and skills, but ultimately they are the ones who have to make the choice to change. When they do, it's very rewarding to see." (DA8)

The dental assistants also emphasized the importance of ongoing education and support to maintain behavior changes over time.

"Changing habits is hard. Patients need a lot of encouragement and reinforcement, especially in the beginning. We make sure to follow up with them at each visit, celebrate their successes, and problem-solve any challenges." (DA3)

"We tell patients that oral health is a lifelong journey. There will be ups and downs, but we are here to support them every step of the way. It's not just about fixing their teeth, but building a partnership for long-term health." (DA17)

5. Discussion

This qualitative study provides valuable insights into the experiences and perspectives of dental assistants in Saudi Arabia regarding their role in providing oral health education and its influence on patients' general health behaviors. The findings highlight the crucial role that dental assistants play in promoting oral health, while also shedding light on the challenges they face and the strategies they use to overcome them.

One of the key themes that emerged was the importance of effective communication in delivering oral health education. The dental assistants in this study recognized that providing information alone is not enough to change behaviors; rather, the information must be tailored to the individual patient's needs, beliefs, and circumstances. This finding is consistent with previous research emphasizing the importance of person-centered communication in oral health promotion (Rozier et al., 2020). The dental assistants used various strategies to bridge communication gaps, such as using visual aids, involving family members, and adapting their language and style to the patient's background. These strategies have been shown to enhance understanding and retention of health information, particularly among patients with low health literacy (Lee et al., 2019).

Another important theme was the influence of cultural beliefs and norms on patients' receptivity to oral health education. The dental assistants noted that traditional beliefs, gender roles, and family dynamics often shaped how patients perceived and acted on oral health information. This finding underscores the need for culturally competent care that respects patients' values and traditions while still promoting evidence-based practices (Albuha Al-Mussaied & Elgendy, 2018). The dental assistants emphasized the importance of building trust and rapport with patients and families in order to navigate cultural barriers and achieve behavior change.

The study also revealed a strong belief among the dental assistants that oral health is intricately linked to overall health and well-being. They saw their role as not just improving patients' teeth, but enhancing their quality of life in a holistic sense. This finding aligns with the growing recognition of oral health as an integral component of general health, as reflected in major public health reports and initiatives (Jackson et al., 2021). The dental assistants' efforts to collaborate with other health professionals and community partners reflect a broader shift towards interprofessional and multisectoral approaches to health promotion (Mays et al., 2021).

Perhaps most encouragingly, the dental assistants provided numerous examples of how their oral health education had led to positive changes in patients' dietary, hygiene, and lifestyle behaviors. While these changes were often incremental, they cumulatively contributed to improved oral and general health outcomes. This finding adds to the growing body of evidence on the effectiveness of oral health education interventions delivered by dental auxiliaries (Albino & Tiwari, 2016). The dental assistants' insights on what makes oral health education effective – namely, personalization, practicality, and empowerment – align with best practices identified in the literature (Simon et al., 2018).

This study has several implications for practice, policy, and research. First, it highlights the need for ongoing training and support for dental assistants in delivering effective oral health education. While the dental assistants in this study demonstrated strong communication and counseling skills, they also expressed a desire for further training in areas such as motivational interviewing, health coaching, and cultural competence. Integrating these skills into dental assisting curricula and continuing education programs could help enhance the impact of oral health education interventions (Rhee et al., 2021).

Second, the study underscores the importance of interprofessional collaboration and community engagement in promoting oral and general health. The dental assistants' examples of collaborating with diabetes educators, school personnel, and community organizations suggest that oral health promotion is most effective when integrated into broader health and social initiatives. Policymakers and healthcare leaders should prioritize creating opportunities and incentives for such collaboration, both within and beyond the healthcare system (Mays et al., 2021).

Finally, the study points to the need for further research on the role of dental assistants in promoting health behaviors and reducing health disparities. While this study provides valuable qualitative insights, quantitative studies are needed to measure the impact of dental assistant-led interventions on specific health outcomes, such as oral hygiene indices, dietary intake, and chronic disease management. Studies should also explore how factors such as patients' socioeconomic status, health literacy, and access to care interact with the effectiveness of oral health education. Such research could help inform the design and targeting of future interventions to achieve maximum impact and equity.

This study has several limitations that should be noted. First, the sample size of 20 dental assistants, while sufficient for qualitative saturation, may not capture the full range of experiences and perspectives among this diverse workforce. Second, the study relied on self-reported data, which may be subject to social desirability bias. Observational studies could provide a more objective assessment of dental assistants' educational practices and patient interactions. Finally, the study was conducted in the specific context of Saudi Arabia, and the findings may not be generalizable to other cultural or health system settings.

Despite these limitations, this study makes an important contribution to the literature by providing an in-depth exploration of dental assistants' role in promoting oral and general health through patient education. The findings underscore the vital importance of this role, while also highlighting the challenges and opportunities for enhancing its impact. As the global burden of oral diseases continues to rise, harnessing the potential of dental assistants as health educators and advocates will be crucial for achieving population health goals.

References

- Albuha Al-Mussaied, A. A., & Elgendy, O. A. (2018). Culturally competent care for Saudi patients. *Middle East Journal of Nursing*, 12(1), 3-11. <https://doi.org/10.5742/mejn.2018.93345>
- Al-Ansari, A. A. (2014). Prevalence, severity, and secular trends of dental caries among various Saudi populations: A literature review. *Saudi Journal of Medicine and Medical Sciences*, 2(3), 142-150. <https://doi.org/10.4103/1658-631x.142496>

- Albino, J., & Tiwari, T. (2016). Preventing childhood caries: A review of recent behavioral research. *Journal of Dental Research*, 95(1), 35-42. <https://doi.org/10.1177/0022034515609034>
- Almaiman, S., Bahkali, S., Bahkali, A., Bedaiwi, N., & Alghamdi, S. (2016). Dental caries and amalgam fillings in Saudi adolescents: A mixed-methods study. *Journal of Public Health Dentistry*, 76(4), 301-309. <https://doi.org/10.1111/jphd.12162>
- Al-Rafee, M. A., AlShammery, A. R., AlRumikan, A. S., & Pani, S. C. (2019). A comparison of dental caries in urban and rural children of Saudi Arabia. *Frontiers in Public Health*, 7, 195. <https://doi.org/10.3389/fpubh.2019.00195>
- Alshammery, F., Siddiqui, A. A., Al-Enzy, A. S., Almalaq, S. A. S., Amin, J., Rathore, H. A., Alanazi, T. A., & Al Saffan, A. D. (2019). Prevalence of dental caries among elementary school girls in Riyadh, Kingdom of Saudi Arabia: A cross-sectional survey. *Journal of Oral Health & Community Dentistry*, 13(1), 9-13.
- Al-Yousuf, A. A., Alanazi, K. M., Alhwaimi, I. A., Alduraywish, A. A., Alqahtani, M. M., Almowaina, S. A., & Almutairi, A. M. (2019). Dental assisting: Perspectives of dental assistants in Riyadh, Saudi Arabia. *Pakistan Oral & Dental Journal*, 39(3), 289-295.
- Baiju, R. M., Peter, E. L. B. E., Varghese, N. O., & Sivaram, R. (2017). Oral health and quality of life: Current concepts. *Journal of Clinical and Diagnostic Research*, 11(6), ZE21-ZE26. <https://doi.org/10.7860/jcdr/2017/25866.10110>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Brickle, C. M., & Self, K. D. (2017). Dental therapists as new oral health practitioners: Increasing access for underserved populations. *Journal of Dental Education*, 81(9 Suppl), eS65-eS72. <https://doi.org/10.21815/jde.017.036>
- Candell, A., & Engström, M. (2010). Dental hygienists' work environment: Motivating, facilitating, but also trying. *International Journal of Dental Hygiene*, 8(3), 204-212. <https://doi.org/10.1111/j.1601-5037.2010.00454.x>
- Dörfer, C., Benz, C., Aida, J., & Campard, G. (2017). The relationship of oral health with general health and NCDs: A brief review. *International Dental Journal*, 67 Suppl 2, 14-18. <https://doi.org/10.1111/idj.12360>
- Ghaffari, M., Rakhshanderou, S., Ramezankhani, A., Noroozi, M., & Armoon, B. (2018). Oral health education and promotion programmes: Meta-analysis of 17-year intervention. *International Journal of Dental Hygiene*, 16(1), 59-67. <https://doi.org/10.1111/idh.12304>
- Glick, M., Williams, D. M., Kleinman, D. V., Vujicic, M., Watt, R. G., & Weyant, R. J. (2016). A new definition for oral health developed by the FDI World Dental Federation opens the door to a universal definition of oral health. *British Dental Journal*, 221(12), 792-793. <https://doi.org/10.1038/sj.bdj.2016.953>
- Harris, R., Gamboa, A., Dailey, Y., & Ashcroft, A. (2012). One-to-one dietary interventions undertaken in a dental setting to change dietary behaviour. *Cochrane Database of Systematic Reviews*, (3), CD006540. <https://doi.org/10.1002/14651858.cd006540.pub2>
- Ingle, N. A., Al-Hebshi, N., Alharbi, R. H., Alharbi, H. A., & Almatrafi, M. M. (2018). Oral health-related quality of life among Saudi population: A cross-sectional study. *Nigerian Journal of Clinical Practice*, 21(12), 1596-1601. https://doi.org/10.4103/njcp.njcp_144_18
- Jackson, S. L., Vann, W. F., Jr, Kotch, J. B., Pahl, B. T., & Lee, J. Y. (2011). Impact of poor oral health on children's school attendance and performance. *American Journal of Public Health*, 101(10), 1900-1906. <https://doi.org/10.2105/ajph.2010.200915>
- Jepsen, S., Blanco, J., Buchalla, W., Carvalho, J. C., Dietrich, T., Dörfer, C., Eaton, K. A., Figuero, E., Frencken, J. E., Graziani, F., Higham, S. M., Kocher, T., Maltz, M., Ortiz-Vigon, A., Schmoekkel, J., Sculean, A., Tenuta, L. M. A., van der Veen, M. H., & Machiulskiene, V. (2017). Prevention and control of dental caries and periodontal diseases at individual and population level: Consensus report of group 3 of joint EFP/ORCA workshop on the boundaries between caries and periodontal diseases. *Journal of Clinical Periodontology*, 44 Suppl 18, S85-S93. <https://doi.org/10.1111/jcpe.12687>
- Kane, S. F. (2017). The effects of oral health on systemic health. *General Dentistry*, 65(6), 30-34.
- Kay, E., Vascott, D., Hocking, A., Nield, H., Dorr, C., & Barrett, H. (2016). A review of approaches for dental practice teams for promoting oral health